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NEUROPSYCHOLOGICAL PROFILES OF ADULTS WHO REPORT "SUDDEN REMEMBERING" OF EARLY CHILDHOOD MEMORIES: IMPLICATIONS FOR CLAIMS OF SEX ABUSE AND ALIEN VISITATION/ABDUCTION EXPERIENCES[1]

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Summary.—Six adults, who had recently experienced sudden recall of preschool memories of sex abuse or alien abduction/visitation, were given complete neuropsychological assessments. All experiences "emerged" when hypnosis was utilized within a context of sex abuse or New Age religion and were followed by reduction in anxiety. As a group, these subjects displayed significant ($T > 70$) elevations of childhood imaginings, complex partial epileptic-like signs, and suggestibility. Neuropsychological data indicated right frontotemporal anomalies and reduced access to the right parietal lobe. MMPI profiles were normal. The results support the hypothesis that enhanced imagery due to temporal lobe lability within specific contexts can facilitate the creation of memories; they are strengthened further if there is also reduction in anxiety.

When a response is followed by a reduction in an aversive experience, the strength of the response and the responses with which it is associated are reinforced. Anxiety, which is the anticipation of vague aversive experiences, is the negative component of the general property of vigilance. Modern neuroscience indicates that vigilance is mediated primarily by right hemispheric processes (2, 7, 38) while linguistic symbols and images, the sense of awareness of body states, and the self-concept are mediated primarily by left hemispheric operations (5, 8).

There is general agreement that for the normal person to become aware of an experience, it must be translated into linguistic or symbolic images (5, 16). Intrusive inputs from the right hemisphere of the adult brain may be difficult to translate because the syntactic competence of right hemispheric processes is equivalent to that of a normal 3- to 6-yr.-old child (39) and the vocabulary level is similar to that of a young teenager (3). Consequently, there may not always be linguistic equivalents of right hemispheric operations within left hemispheric processes (12).

We (25) have suggested that the sense of a "presence," as well as other ego-alien intrusion experiences (e.g., Old Hag experiences), are the right hemispheric equivalent of the left hemispheric (and heavily linguistic) sense of self. The hypothesis has been supported by the factor analytic patterns of phenomenological data (26). Microstructural or neurochemical factors that

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promote coherence between the temporal lobes of the two hemispheres would increase the frequency of these experiences.

A logical extrapolation of the above principles is that a reinforcement history of apprehension and vague negative anticipation facilitates enhanced vigilance. Linguistic labels (as well as their semantic associations) that reduce this vigilance would be reinforced. The images that were associated with these labels would be experienced as memories that would become stronger and more elaborate as the cycle of anxiety/anxiety-reduction and explanations continued. The process could require days to weeks.

Procedures that enhance the association between any verbal label and anxiety reduction would be expected to facilitate the formation of these memories. One of the most well known procedures is hypnosis or suggestion (3, 35). There is a strong anxiolytic component to hypnosis (29). That autobiographical pseudomemories can be induced in about 50% of highly hypnotizable subjects has been demonstrated frequently (14, 15). Not surprisingly, techniques of creating memory have been used to assist psychotherapy for over a century.

In several experiments (33) we have found that men and women who display more frequent temporal lobe signs are also more suggestible. Recent unpublished analyses by the author have shown that scores on Spiegel and Spiegel's Hypnosis Induction Profile were significantly correlated (*rho* = 0.40 for women; *rho* = 0.33 for men; 76 subjects) with experiences that have been attributed to right hemispheric processes, including dissociation (31). These results suggest that people whose experiences are most affected by hypnotic induction are also more prone to enhanced vigilance and to frequent intrusions from right-hemispheric processes (29, 31).

Because hypnosis is associated with subjective temporal constriction or time loss (36), right hemispheric "affective images" or "intrusions," produced by the context and innuendos of the social setting, might be processed as "memories" and sequestered within the amnesic interval. Once formed, they would appear as real and as "old" as normal memories that were acquired through usual ontogenetic processes. The intrinsic cognitive restructuring, an expected consequence of the assimilation of these "memories" into the person's autobiographical memory, would be expected to generate substantial changes in personal focus, expectations, and explanations of personal behavior.

The clinical significance of this process is suggested by six separate cases that became evident during routine neuropsychological assessments. There were five women and one man; their ages ranged between 21 and 55 years of age at the time of testing. All of the subjects had been referred for assessment either for academic problems or personal interest. Each subject was individually administered the complete Halstead-Reitan Battery (includ-

ing the WAIS—R), the MMPI (Minnesota Multiphasic Personality Inventory), the Personal Philosophy Inventory (24), the Wilson-Barber Inventory of Childhood Imaginings and Memories (37), and the Hypnosis Induction Profile (35). In addition, the Conditioned Spatial Association Task (19), Design Fluency, Chicago Word Fluency, and Auditory Closure Test (13) were administered.

Each subject also sat in a comfortable chair that was housed within an acoustic chamber while a Grass Model 79 EEG recorded bipolar activity over the occipital (O1, O2), temporal (T3, T4), and frontal (F7, F8) regions. Comparisons between each pair of these three regions for the left and right hemispheres were also completed. The records were evaluated for qualitative profiles and pathognomonic indicators. Decisions were based upon the laboratory data base and previous analyses (18).

All subjects described themselves as "different children" who felt as if "something was missing;" their childhoods were described as mildly apprehensive but the source of the anxiety was never clear. Between 1 and 5 years before the testing, each subject had become involved with a self-help group. Three of the five women had started as "helpers" for incest/sex abuse survivor groups while the other two women and the man had become involved with New Age religious groups (primarily reincarnation, spiritualism, and alien intelligence themes). The "treatment" procedures for these groups were strongly dependent upon various forms of regression hypnosis and hypnotic induction.

Each subject reported that the "forgotten memories" suddenly occurred when the leader of the group had stated either "perhaps you were sexually abused" (incest groups) or "perhaps you were abducted or visited" (religious groups). All subjects noted that "specific memories suddenly occurred" and that they "knew what had happened." The experience was associated with reduction of anxiety and a commitment to pursue the phenomenon. During the subsequent days to weeks "more memories" emerged and the reduction of anxiety (including panic attacks in three of the subjects) subsided.

The sex abuse or abductions/visitations were "remembered" to have occurred when the subjects were "about 4 or 5 years of age" (range 2 to 6 years of age) even though there had been no apparent recall of these events until the time of the sudden recollection. All of the subjects recalled a "sensed presence" during at least one of the recall sequences; the presence was experienced along the left visual field for each subject. Multiple subjective paranormal experiences, especially precognitive dreams or impressions, were reported subsequent to the first "sudden remembering." Some form of anxiety-reduction ritual, such as "prayers of protection" or a type of self-affirmation, was employed.

As shown by formal testing, the IQs of these people ranged between 95

and 115, with no significant (<1 standard deviation) discrepancy between the WAIS—R Verbal IQ and the Performance IQ. However, the memory quotient (MQ) was more than one standard deviation above the IQ for four of the six people. Within the traditional Halstead Reitan Battery, there were no significant strengths or weaknesses for the finger agility, manipulative dexterity, Seashore Rhythm, Speech Sounds, Trails A or Trails B, or the sensory-perception tests. Mild impairment [as defined by Jarvis and Barth (11)] for the Category test was noted in all subjects; in addition, both the left-hand tactual performance time (TPT) and either the localization or the memory scores were mildly impaired for this task.

Specialized tests showed normal Chicago Word Fluency but mildly impaired performance on either the Design Fluency or the Conditioned Spatial Association Task. All subjects displayed very significant elevations (T score >70) on the complex partial epileptic-like signs cluster of the Personal Philosophy Inventory; four of the five women displayed marked elevation (T score >80) on the ego-alien intrusion factor (27, 28). Four of the six subjects exhibited an Hypnotic Induction Profile score of 9 or above. MMPI profiles were all normal ($30<T<70$). Five of the six subjects displayed elevations (T score 60 to 69) on the F validity scale and on the *Hy*, *Hs*, or *Ma* clinical scales.

The bipolar EEG measurements over the frontal, temporal, and occipital lobes indicated bursts of anomalous theta activity primarily over the right temporal lobes in two of the subjects. The other subjects all displayed nonpathological spikes or sharp waves within the frontotemporal comparisons; two of these records suggested bilateral occurrence while the other two indicated primarily a right frontotemporal source. One subject showed subvigil beta activity over the frontal region while voluntarily "fragmenting" (i.e., facilitating "presences"). Only one subject displayed paroxysmal activity (over the temporal lobes) that was sufficient for referral to a neurologist.

These results support the hypothesis that a history of anxiety (especially for the ego-weakness subscale of the IPAT anxiety scale), complex-partial epileptic-like signs, and suggestibility may facilitate the creation of images whose content is determined by the social context or expectancy which is present during conditions (such as hypnosis) that facilitate dissociation. If these images reduce existential anxiety, then they may be reinforced and perceived as memories. Sex abuse or alien/spiritual visitations or abductions (6) are contemporary themes that can facilitate a sense of identity, personal structure, and teleology (1, 21, 22). People with a history of low self-esteem, which could be exacerbated by the negative affect associated with frequent intrusions of right hemispheric processes (25), might also report a "new self" or sudden, enhanced self-esteem.

The elevation of complex-partial epileptic-like signs and the enhanced

memory quotient relative to the person's IQ are commensurate with the inference of enhanced electrical activity within the hippocampal-amygdaloid complex. This pattern, in context of the sensed presence in the left visual field and the mild deficit in left hand (right parietal) tactual performance time and localization for haptic perceptions, suggests that mild anomalies in the right parietotemporal region could facilitate "intrusive" experiences into the left hemisphere. Because hypnotic susceptibility may be more strongly correlated with right hemispheric phenomenology than with left hemispheric experiences (3, 31; Persinger, unpublished data), conditions that facilitate or focus upon the person's elevated suggestibility would promote the intrusion.

Electrical stimulation of the mesiobasal portions of the temporal lobes is known to evoke complex phenomenological experiences that are *not* simple memories (9). Careful examination of the literature indicates that electrical stimulation of this region evokes transient intensification of all of the domains of the *ongoing cognitive process*. Consequently, the experient becomes more aware of specific exteroceptive and interoceptive perceptions, memories, affect, interpretations (that are markedly affected by context; see 17) and extrapolations (which would include imagination, creativity, and fantasy). Chronic mild to moderate temporal lobe lability would be expected to produce a cognitive style of effortless experiencing, a factor that is associated experimentally with the formation of pseudomemories (14) and increased metabolic activity within the temporal lobes (10).

The indication of mild right frontal lobe signs is important because this structure has a role in remembering the *temporal order* of memories and in discriminating phenomenological information that was acquired through traditional sensory processing or subsequent to transient episodes of intense dreaming or other altered states. As indicated by Moscovitch (20) and Shallice (34), the consolidation process for memory does not distinguish between information acquired through externally evoked representations and images generated by fantasy, dreaming, or cognitive responses to verbal instructions; categorization of an experience as a "memory" or as "a dream" requires continuity of frontal lobe function. Transient dysfunctions would encourage a misattribution process (14).

Given the right frontal lobe's powerful modulation of *incidental learning* (2) and its activation during recall of episodic memories about childhood (10), one would expect that these subjects would be particularly vulnerable to "misattributing" information that was presented within nonverbal or social contexts as actual memories from some unclear time. A facilitation in the production of intense imaginings is expected within hypnotic settings because alterations in subjective time are correlative (36). If normal brain processing then designates these "new memories" to ontogenetic periods of "missing time," then one would expect the age range of 2 to 6 years to be

prominent. This interval, which reflects significant changes in the structural relationship between the hippocampus and the dentate gyrus (4), is associated with poor former memory capacity and contains multiple "time-loss" episodes that are manifested as infantile amnesia.

The suspected sexual dimorphism (30) of the limbic structures of the human brain should be reflected in the general themes of the imaginings. The insula and adjacent orbital frontal regions are associated with the internal representations of the body. Thus one would expect a predominance of taste and smell themes for both sexes but primarily anal themes for men and both anal and intrusive genital experiences (because representation of the inner vagina and the cervix is within the caudal orbital frontal/anterior insular cortices; 32) for women; this sexual dimorphism would encourage experiences of "the unexplained disappearing fetus" during real or imagined pregnancies. These themes would be interwoven with more classic temporal lobe phenomenology that would include out-of-body experiences, religious connotations, sensed presences, floating, and "selection" because there is some special personal characteristic (23, 24).

The content of "sudden recollections" would not be particularly bizarre and would involve sequences that are compatible with normal human interactions. [Even verified ictal experiences, such as the feeling that someone is going to grab the person or penetration followed by orgasm are reported as veridical (16).] If they were bizarre or incompatible with the person's expectancy, then significant anxiety would be expected. From this approach only details, images, and themes that are associated with anxiety reduction would be remembered. Except for the "sudden recollection" component, one would not be able to distinguish these memories from those associated with verified abuse.

Of course, the possibility that repeated sexual abuse by parents or invisible entities or abduction/abuse by alien intruders actually occurred cannot be totally excluded in any of these six cases. One could counterargue that enhanced hippocampal activity may suppress the normal process that maintains infantile amnesia and hence images achieve cortical accessibility that is followed by awareness. However, considering the pattern of the results of the norm-referenced testing and the contemporary understanding of brain function, the more parsimonious explanation would involve a process that generated intense imaginings. Predisposed by temporal lobe lability, directed by social context and inappropriately labelled by transient anomalies of right frontal lobe function, these imaginings became indiscriminable from normal memories.

The distinguishing feature of the six subjects in this study was the recent sudden occurrence of the memories without obvious antecedents. If intrinsic cognitive and memory restructuring occurs as a normal function of

continual experience, then one would expect that in some subjects the memories would not be remembered to have occurred suddenly or recently but would appear to have always been present. Other individuals would report such experiences for the first time as adults but feel that the memories had been always present, simply "repressed."

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